Bob Scharf

OUTLINE FOR A PROPOSED COOPERATIVE SURVEY AND STUDY ON CYTOSPORA CANKER OF TRUE FIRS IN CALIFORNIA

The Plumas National Forest, Milford district, is ~~having a serious problem~~ concerned with a fungus canker and dieback problem (Cytospora abietis) on eastside white firs (Abies concolor). Presence of the disease was confirmed by laboratory analysis at Pacific Southwest Forest and Range Experiment Station and its possible association with the fir engraver beetle, Scolytis ventralis, is strongly suspected. This disease organism is known to damage trees not only on the Plumas NF but is a problem in white firs throughout much of their range on the drier slopes of the eastside Sierra Nevada. The fungus is also a serious canker organism in association with dwarf mistletoe throughout the range of firs in California where dwarf mistletoes are present in stands.

A recent field trip in August 1976 by pathologists from PSW, Region 5, and University of California, Berkeley confirmed that a potential problem does exist but that answers concerning how to manage these stands to alleviate the current problem or how to avoid intensifying the problem in the future are not available.

It appears that surveys and studies conducted cooperatively by R-5 Pest Control, PSW Disease Research, U.C. Berkeley, and the Plumas NF will be able to provide valuable information in 3-5 years on disease impact and management approaches to control Cytospora in eastside white fir forests. Information obtained from these cooperative surveys and studies should apply not only to Cytospora problems on the Plumas NF but elsewhere where the problem occurs on true firs on the eastside Sierra.

The cooperative effort should show:

1. The magnitude and severity of C. abietis in representative stands of eastside fir.

2. If logging infested stands aggravates the disease problem in residual crop trees.

3. If thinning overstocked stands alleviates the diseas in crop trees by improving tree vigor.

4. If Scolytis ventralis (fir engraver beetle) and Fomes annosus (annosus root rot), also found in the area, are interrelated in some way to the incidence or severity of damage by Cytospora.

Role of research:

1. Develop an incidence and damage rating system for Cytospora to be used in the survey and damage appraisal of the area.

2. Select study plot areas which will provide information on the interrelationships among Fomes annosus, Scolytis, and Cytospora and the incidence of these insects and diseases and the type and extent of impact.

Role of R-5, Pest Management:

1. Determine the extent and severity of Cytospora using the rating systems developed to ascertain current impact under various stand conditions.

2. Determine in cooperation with research, the changes in disease incidence and impact in stands that have undergone certain prescribed treatments (such as thinnings and loggings). Included in these investigations would also be the changes in incidence or impact caused by related insects and disease associates (F. annosus, Scolytis).

3. Aid in writing prescriptions designed to alleviate the effects of the insects/diseases operating in the stand.

Role of the Forest-District:

1. Aid in delineating potential problem areas and aiding in the incidence and impact surveys.

2. Assisting in the mechanics of plot establishment, thinnings, logging operations, tree measurements, and associated type of needed forest activities.

3. Protecting and maintaining any plot areas for up to 5 years.

Cooperators:

1. Ed Wood--Pest Management, R-5, USFS, San Francisco.
2. Robert Scharpf--Plant Pathologist, PSW, USFS Berkeley.
3. J. R. Parmeter--Dept. Plant Pathology, U.C., Berkeley.
4. Dick Castledini--Silviculturist, Plumas NF, Quincy.
5. Walt Leonard--TMO, Milford District, Plumas NF.
6. George Ferrell--Entomologist, PSW, USFS, Berkeley.

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5220 Forest Disease Detection February 11, 1976

White Fir Damage

Forest Supervisor, Plumas N.F.

The damage reported on white fir on Milford District between Willow and Ferris Creeks, has been examined twice, in August by Phil Interf, members of the Forest Staff, and Ed Wood, a Pathologist; and on November 11 by Tom McGrath and Ed Wood.

The initial diagnosis was confirmed from samples brought back and treated by Bob Scharpf, Plant Pathologist from PSW. A high percentage of those samples contained cankers caused by Cytospora abietis, a fungus which usually causes minor damage or which is associated with dwarf mistletoe, but which can become epidemic in times of stress. It appears that the recent logging in that stand, combined with the stress caused by the dry summers of 1971-1972, have enabled Cytospora to build up in many white fir stands, especially ones which appear to be marginal for white fir. Although infections are moderate over much of the forest and on adjoining forests, and considerable mortality has occurred, this stand is sustaining more damage and mortality by far than any other stand so far observed. In addition to Cytospora, the fir engraver, Scolytus ventralis, and Fomes annosus root rot are causing mortality.

If the dry weather continues, more mortality may be expected in this and other stands. Many trees appear to be predisposed by the cankers to attacks by fir engraver beetle. This stand should be monitored to note any increase in mortality.

In order to better observe the trend of damage and mortality, Fay Shea, Entomologist, and Ed Wood intend, with the cooperation of Bob Scharpf and George Ferrell from PSW, to conduct a limited survey in this stand early in the spring. They will contact Phil Interf and Tom McGrath when their plans are firmed up.

Wilfred Freeman, Jr.

WILFRED L. FREEMAN, Jr., Director
Forest Pest Control Staff

REWood:tc

R-5

5230 Evaluation September 10, 1976

Forest Disease Evaluation

Forest Supervisor, Plumas National Forest

On August 18, Ed Wood, a pathologist from FIDM, along with Dick Castaldini and Phil Intorf from the Supervisor's Office, Bill Lockenmayer, Walt Leonard, and Tom McGrath of Milford Ranger District, Bob Scharpf from PSW Forest and Range Experiment Station, and Dick Parmeter, Mark Schultz and Susan Bullen from the University of California, visited stands near Ferris Cabin on Milford Ranger District which have been heavily damaged by Cytospora cankers. The incidence of cankers appears to be as high or higher than was found last year. Damaged stands appear to have been mixed conifer stands from which much of the pine overstory has been removed leaving scattered overstory pines and an understory consisting largely of white fir with some pine. In addition to Cytospora canker, these stands are sustaining losses from annosus root rot caused by Fomes annosus and fir engraver beetle, Scolytus ventralis. The dominant white firs in the understory appear for the most part healthy enough to fight off insects and diseases and are exhibiting adequate growth; most of the co-dominant and small white firs are growing very slowly, have excessive branch and top dieback, and the mortality rate is high. In order to minimize the impact of Cytospora, this stand should be thinned in areas where Cytospora is active, retaining only those firs which are dominant and which are relatively free of Cytospora. Where no healthy firs are present, all firs should be removed in patches large enough to allow the planting of pine.

Ed Wood and Bob Scharpf plan to institute a small study to determine what effect the different levels of thinning have on trees infected by Cytospora. Details will be worked out by them--it appears at this point that District personnel will do the thinning using guidelines developed at PSW, and that personnel from FIDM will supervise the plot establishment, take data, and assist PSW in analyzing results. Cytospora appears to be an increasing problem in white fir throughout the eastside of the Sierra north of Tahoe. The results of this study should be of use throughout this area.

WILFRED L. FREEMAN, JR.

WILFRED L. FREEMAN, Jr., Director
Forest Insect & Disease Management

CC: Bob Scharf - PSW- Berkeley

WOOD/sn